CANADA PLAN SERVICE
25 ANNIVERSARY
1953-1978

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25th ANNIVERSARY
1953/1978

FOREWORD

For a quarter of a century, the Canada Plan Service has been serving farmers and the farm building construction industry. This industry in Canada is estimated at $500 million annually.

The Canada Plan Service (CPS) has been an effective vehicle for promoting engineered farm buildings, designed to meet requirements of the Canadian Code for Farm Buildings. Important CPS developments include clear-span roof trusses, pole frame wall construction, outside-insulated foundations, diaphragm construction to resist wind, continuous beam design, and many others.

Many highly successful building innovations have resulted from a hybridization of thinking between the engineer and the builder, or the engineer and the farmer. "For example," says John Turnbull, Director of the CPS Design and Drafting Center, Ottawa, "we have worked closely between silo builders and the National Research Council (NRC) to improve the design of silo foundations."

This 25th Anniversary historical brochure is an attempt to record some of the highlights of the progress, developments and achievements of the Canadian Farm Building Plan Service — now the Canada Plan Service.

This brochure was researched and written by C. Hamilton Kenney, P.Ag., who, for nearly 25 years, represented the Canada Department of Agriculture (CDA) Information Services on the Canada Plan Service Committee. 'Ham' Kenney joined Agriculture Canada (CDA) in June 1948, at the time the Publicity and Extension Division became Information Service, later Information Division, and, in 1977, Information Services. He had been Chief, Publications, since 1965, and retired on December 29, 1977.

J.E. Brubaker, Chairman,
Canada Plan Service.

The year 1978 marks the 25th Anniversary of the Canada Plan Service (CPS), formerly the Canadian Farm Building Plan Service (CFBPS). Happy Planniversary!

This plan service was organized to develop and produce working drawings for the construction of farm service buildings and related labor-saving equipment and to present information on the design of service buildings in relation to management, labor requirements and other factors affecting livestock and crop enterprises. It excluded the farm dwelling since other agencies, including the Central Mortgage and Housing Corporation, assumed this responsibility.

The CFBPS was initiated and co-ordinated by the National Committee on Agricultural Engineering (NCAE), made up of agricultural engineers from the federal and provincial Departments of Agriculture and Agricultural Colleges in Canada.

Simply stated, at this point in history, three Chairmen have masterminded the Plan Service from its inception and each played their distinctive roles: C.G.E. Downing, the organizer; F.H. Theakston, the innovator; and J.E. Brubaker, the implementer.

Certainly, the plan service, through the efforts of the extension engineers across the country, has had a significant impact, not only on the silhouette of farm buildings on the landscape, but also on their functional efficiency for the farmer. Not to be forgotten, of course, is the relationship and the importance of the Canadian Farm Building Code to the credibility of the plans and, in this respect, inestimable support and credit goes to Dr. R.F. Leggett, Director of the Division of Building Research at the National Research Council, who gave it sponsorship. Dr. Leggett retired in 1969.

Flashback on Plan Service Idea

Did you know that the establishment of a co-ordinated plan service covering farm buildings and facilities was recommended by the National Committee on Agricultural Engineering in 1944? This took place at the inaugural meeting of the NCAE held in the Chateau Laurier Hotel in Ottawa. It was envisioned by some as a co-operative exchange of plans among Federal and Provincial institutions. Consequently, a sub-committee on Farm Buildings was set up by the NCAE to study the problem of creating a plan service, and liaison was made with National Housing, established under the National Housing Act of 1944.

The Farm Buildings Sub-Committee met in 1945 at the Experimental Station, Swift Current, Sask., to consider available farm housing and service building plans. Plans adopted included five for farm houses, two for farm workshops, two for grain storage, two for cattle and horses, two for piggeries and plans for certain livestock equipment. It was proposed that these plans be redrafted at the architectural office of the Experimental Farms Service. To handle the work, three positions were established in the following year for this drafting office but were never filled because of the scarcity of qualified draftsmen and the inadequacy of salaries that could be offered. By 1949, even with limited staff and time, five housing plans had been drafted, together with plans for two general purpose barns, a farm workshop, a brooder house and three pieces of poultry equipment. These were not sufficient to start a plan service and no particular funds were available for distribution of these plans. In 1949, some ten preliminary farm housing plans were published under the auspices of the Prairie Rural Housing Committee and Central Mortgage and Housing Corporation. An urgent need for farm housing plans had thus been partly met.

Time for a New Approach

In 1951, the Eastern Section of the NCAE set up a sub-committee to collect and report on farm building plans available in Eastern Canada.

The Downing-Banting-Chartier correspondence of that day reveals[1] that some 446 plans were collected; of these, 26 related to farm buildings and 243 to barns, as reported to the Second Conference of the NCAE held at Ottawa in 1952. Provincial representatives at the Conference were asked what type of farm building plans were most urgently required in each region. This indicated the classes of service building plans required, and further indicated farm housing was not as urgent.

At the 1953 meeting of the Western Section of the NCAE, it was proposed that the preparation of service building plans be undertaken on the basis of eight separate classes of buildings with a sub-committee for each class. At a meeting of the Eastern Section of the NCAE, which followed, the Executive of the NCAE named the nucleus of plan committees for Beef Cattle, Dairy Cattle, Swine, Sheep, Poultry, Grain Storage, Fruit and Vegetable Storage, and Machinery Storage and Miscellaneous, subsequently designated Special Structures.

Two members were appointed to each plan committee, with power to add livestock and other specialists with a view to preparing a catalogue of plans covering their particular class of buildings. Drafting service was to be provided at the Ontario Agricultural College, through Professor F.H. Theakston, the Experimental Station, Swift Current through J.L. Thompson, and subsequent arrangements were made through the late J.M. 'Army' Armstrong for drafting to be done at the Central Experimental Farm, Ottawa.

1. Professor Jacob Pos, University of Guelph, who was a graduate student under Professor Downing at the time, assisted with the initial roundup of farm building plans.

CANADA PLAN SERVICE

CHAIRMEN

J.E. Brubaker
1971-

C.G.E. Downing
1953-62

F.H. Theakston
1963-70

EARLY ADVISORS

W. Kalbfleisch
1959-65

O.E. Symes
1952-54

J. Pos.
1952-54

A. Banting
1952-54

J.M. Armstrong
1952-58

G.N. Denike
1952-54

BRITISH COLUMBIA

T.A. Windt
1972-

R.J. Miller
1967-71

G.A. Calver*
1960-66

* Ontario 'contact' in 1971

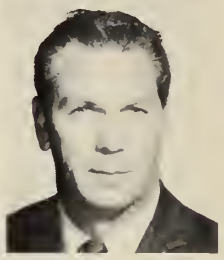
ALBERTA

D.E. Darby
1975-

J.L. Reid
1962-74

C.A. Cheshire
1959-61

SASKATCHEWAN



P.O. Moen
1973-

J.A. Peck
1960-72

MANITOBA

A.C. Roberts
1977-

E.T. Oatway
1971-76

E.P. Hudek
1960-70

Committee Members and Advisors

ONTARIO

J.B. Arnold
1974-

E.M. Wrubleski
1973

R.J. Milne
1972

H.E. Wright
1964

Note: J.E. Brubaker served as 'contact' 1965-70; G.A. Calver 1971.

QUÉBEC

G. Belzile
1976-

G. Jacob
1974-75

J.J. Hogan
1965-73

J.A. Choinière
1963-64

B. Chartier
1960-62

NEW BRUNSWICK

W.C. Durant
1975-

E.D. Gilchrist
1966, '69, '74

J.A. Roberts
1959-65, 67-68, and 70-73

NOVA SCOTIA

J.D. Gunn
1965-78

D.J. Milligan
1960-64

NATIONAL RESEARCH COUNCIL

R.F. Leggett
1960-69

PRINCE EDWARD ISLAND

G. Linkletter
1971-

CDA INFORMATION SERVICES

M. L'Arrivée
1978-

C.H. Kenney
1954-77

NEWFOUNDLAND

M. Pascua
1970-

ONTARIO HYDRO*

G. Webber
1967-

R.G. Winfield
1970-71

*Became a Member of CFBPS Sub-Committee in 1967; and provided electrical layouts.

Design and Drafting Centers

CPS Design & Drafting Center, Ottawa. J.E. Turnbull has been Director since the Center was established in Ottawa in 1968. L.P. Blais has been Chief Draftsman since 1968. H.A. Jackson joined the Center in 1969 as Design Engineer; also serves as CPS Secretary. J.A. Munroe joined the Center in 1975 and is a Design Engineer. Draftsmen seen in the photo are Al Morden (left) formerly with the Guelph Center, Rick Pella (center) and L.P. Blais (right).
Draftsman L Morgan (back cover)

PRESENT
CPS DESIGN AND DRAFTING CENTER
OTTAWA

J.E. Turnbull
Director
1968-

H.A. Jackson
Design Engineer
1969-

J.A. Munroe
Design Engineer
1975-

L.P. Blais
Chief Draftsman
1968-

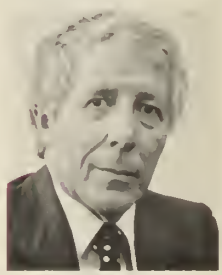
PREVIOUS
CPS DESIGN AND DRAFTING CENTERS

UNIVERSITY OF GUELPH

F.H. Theakston
Director
Guelph D&D Center
1954-70

A.H. Singleton
Chief Draftsman
Guelph D&D Center
1954-70

CENTRAL EXPERIMENTAL FARM OTTAWA



J.W. White
Director
Ottawa D&D Center
1954-58

C.M. Reaney
Chief Draftsman
Ottawa D&D Center
1954-58

RESEARCH STATION SWIFT CURRENT

J.L. Thompson
Director
Swift Current
D&D Center
1954-58

R. Hankinson
Chief Draftsman
Swift Current
D&D Center
1954-58

ERA I
1953-1958

Support for the Program

The proposed program was submitted in May 1953 to the Executive of the National Advisory Committee on Agricultural Services, representing all Departments of Agriculture and the Agricultural Colleges, and authorization was secured to collaborate with representative animal specialists and other groups in compiling data for the proposed building plan service. By August 1953, it was reported to the National Advisory Committee that nearly all plan committees had completed membership arrangements, involving more than 40 persons; that progress had been made in the assembly of plan material, and that the Publications Committee had agreed to certain drafting practices for the preparation of plan catalogues and plans. Things were beginning to happen. In November 1953, Professor Glenn Downing presented sample copies of a catalogue on Beef Cattle housing to a meeting of the National Advisory Committee, to illustrate the type of material proposed for the co-operative plan service. This material had been planned, prepared, printed and financed by the Ontario Agricultural College. The meeting stressed the necessity of all plans being approved by top animal authorities and other specialists so that the interested agencies would be committed to the job prior to publication. Publishing and financing was to be cleared through both federal and provincial Departments of Agriculture. It was agreed that the drafting work be continued at the three drafting centers, that the drafting staff meet to arrive at a uniform basis of procedure and that the Engineering Committee should continue with the preparation of additional classes of catalogues with supporting plans as proposed.

The Executive of the National Advisory Committee decided in April 1954 that the Federal Government would undertake to edit and publish the plan catalogues in English and French, and would finance the printing of the initial plans on the understanding that distribution would be carried out through provincial organizations. Thus, after almost 10 years of effort, official approval and financial support was secured for the Canadian Farm Building Plan Service. Years later . . . in 1969, the word "Canadian" was changed to "Canada", and in 1973, after a mail vote on 13 suggested new names in search of a shorter name, "Canada Plan Service" (CPS) was officially accepted.

Publishing/Production/Distribution

Support for the program gave impetus to the preparation of material for the Third Conference of the NCAE which was held at Macdonald College in June 1954. This meeting received reports on the work of the eight plan committees: Beef Cattle Housing (Prof. C.G.E. Downing, OAC, Guelph); Dairy Cattle Housing (W. Kalbfleisch, CEF, Ottawa); Sheep Housing, Swine Housing, and Grain Storage (J.L. Thompson, Experimental Station, Swift Current); Fruit and Vegetable Storage (J.A. Roberts, N.B. Dept. of Agriculture, Fredericton); Poultry Housing (Prof. Angus Banting, Macdonald College); and Special Farm Structures (Prof. Oliver Symes, University of Saskatchewan, was unable to be present; his report was given by J.S. Parker, MMRA).

Reports on the Drafting Centers were given by Prof. F.H. Theakston, OAC, Guelph; W. Kalbfleisch, CEF, Ottawa; and J.L. Thompson, Swift Current Experimental Station. The meeting also heard suggestions for improvement of plans, worked out procedures for the drafting centers, and discussed the maintenance of up-to-date material.

J. Stuart McGiffin, CDA Information Service, Ottawa, reported on the printing and distribution of Catalogues and Building Plans. He informed the meeting that the Canada Department of Agriculture would pay for printing and distribution of catalogues to a central office in each Province, would underwrite the cost of printing the initial set of plans, and would make the plans available to the provinces. He later turned over this assignment to his Editor, C. Hamilton Kenney, who represented the Information Service on the Plan Service Committee from 1954 to December 1977.

Copies of the first catalogue printed (Beef Cattle Housing and Equipment) were distributed in quantity to all provincial Departments of Agriculture in May 1955, and the first order for plan sets was received by the Information Service on June 14, 1955. The six plan catalogues printed to June 2, 1958 totalled 170,000 copies of which over 100,000 copies had been distributed to Provincial offices. Approximately 400,000 copies of the plan sets for these catalogues had been printed.

At the same time, progress was being made with the other catalogues. Reproduction copies of

the catalogue on Special Structures had been reviewed by Provincial Departments and the final manuscript was completed. Material for the catalogue on Grain Storage had been drafted and the manuscript was ready for preparation of reproduction copies for circulation and approval prior to printing. The preparation phase for all proposed plan catalogues was thus practically completed and arrangements were underway for supervision and drafting of material for future revisions at the Ontario Agricultural College.

Catalogues and Plan Sets

The Beef catalogue contained a selection of plans for two designs of loose housing barns, a 2-storey barn with overhead storage and a closed barn with ground storage. Three styles of cattle sheds were depicted with feedlot or corral and 21 pieces of beef cattle equipment.

The Dairy catalogue was divided in two sections. The first dealt with standard stall barns for 12 to 60 stalls; also shown were a milk house and two types of silo. The second section presented designs for loose housing barns in size ranges for 12 to 40 cows, plus a milking parlor, bull housing, and some 12 pieces of dairy cattle equipment.

In the Swine catalogue, Danish and Canadian hog barns were shown in sizes suitable for 100-120 market hogs, and a general purpose barn for sows and feeder hogs. Three types of colony houses were included, as well as two types of sun shades, along with some 25 items of feeding and other labor-saving equipment.

Designs in the Sheep catalogue showed a 400-sheep arch-roof sheep barn, a gable roof barn for 300 sheep, and a pole barn with 14-foot bents, each suitable for 40 sheep and a winter's supply of hay and straw. Inexpensive feeding sheds, lambing shelters, sheep yards, corrals, pens, and some 20 items of sheep equipment were shown.

The Poultry catalogue contained designs for a 1-storey laying house for 1700 birds; a 2-storey house for 4000 birds and a 4-storey laying house for 6800 birds, together with smaller laying houses for 1000-2000 birds and a cage laying house for 1600 birds. Designs were also given for a slatted floor laying house, a rigid frame house for 1000 birds and a laying house for 400 birds. A 2-storey broiler house was also shown; in addition there were barns and sheds for turkeys, colony houses and a range shelter. And there were designs for 11 items of poultry equipment and for ventilation systems.

In the Fruit and Vegetable Storages catalogue, designs were shown for fruit packing and storage buildings, a bank-type potato storage for 11,000 bushels and an above-ground potato storage for 35,000 bushels. A 3,000 bushel fruit and vegetable storage was shown, together with a design for a basement storage, a walk-in cooler and freezer, and ventilation systems for storages. Three items of equipment were depicted.

The Grain Storage catalogue contained some 20 types and sizes of storage, such as small portable and permanent granaries, circular plywood granaries in 22,000, 33,000 and 44,000 bushel capacities, driveway type storages; grain storage buildings convertible to machine or animal shelters, and 5,000 and 10,000 bushel crib type farm elevators. Also shown were various types of corn cribs, a drive-through storage and a combination corn storage and drying building of 2,500 bushel capacity, together with temporary types of grain storage and locations for storage loading and unloading equipment.

Finally, the Special Structures catalogue. It contained some ten plan categories, including three designs for motor vehicle storage, a closed frame and pole type machinery storage and workshop and a fuel tank shelter. There were designs for honey houses, a tobacco kiln, pack barn and tobacco handling euipment. Included, too, were small animal buildings such as kennels, mink and fox pens, along with plant growth buildings (greenhouses, hotbeds and coldframes). Other plans included a septic tank, cistern, drainage outlet, and some 14 items of equipment for farmstead and grounds improvement (swings, trellises, picnic tables, incinerator with spark arrestor, shed for garden tools, work bench, breezeway and a fence stile).

It was evident that the Plan Service was initially covered by a comprehensive range of designs for farm service buildings and associated equipment, including sections dealing with management factors. The copy for the first editions of the catalogues and plan sets was developed through the three Drafting Centers as follows: Ottawa: Dairy; Swift Current: Sheep, Swine and Grain Storage; Guelph: Beef, Poultry, Fruit and Vegetables and Special Structures. An initial grant was made to the Ontario Agricultural College to assist in drafting service at that time.

As this history unfolds, the CFBPS had proceeded by 4-5 year stages. Early efforts from 1944-49 to establish the Service failed to secure sufficient support to launch a co-ordinated program of farm housing. Then, in the period from 1951 to 1954, there was a redirection of emphasis on farm service buildings only. The Plan Service then gained widespread support due to improvements in the proposed operations, and possibly because the timing was more appropriate for the idea. In any event, official sanction and financial support

were forthcoming. In the period 1955-58, all eight proposed plan catalogues and plan sets were prepared of which six were published by 1958 and the two remaining ones became available early in 1959. Four catalogues had been issued in French by 1959.

J.M. 'Army' Armstrong[1] who was a former Chief of the Agricultural Engineering Section, Field Husbandry Division, Central Experimental Farm, Ottawa, and who also had served as NCAE Chairman, summed up progress optimistically: "The fact that available plan service material has had reasonably widespread public distribution has, in the opinion of many, amply justified the establishment of the service, and has given considerable gratification to the National Committee on Agricultural Engineering and all those associated with the development."

1. "The Canadian Farm Building Plan Service", Canadian Agricultural Engineering Journal, January, 1959.

Farmer Remi Vandem Borre, Woodstock, Ont., discusses farm building plans with Bob Milne, Ag-Extension Engineer, OMAF.

Bob Milne, Ontario Ag-Extension Engineer who has served as CPS provincial contact, discusses plans with Ronald Wilkin, farmer at RR6, Woodstock, who was interested in a single-storey Dairy barn for 50 cows and silage feeding.

ERA II
1958-1969

Review and Reorganization

In March 1958, in Ottawa, the NCAE Executive reviewed the progress of the CFBPS to determine what reorganization was needed in view of the plan revisions program.

Arrangements were made for the work of revising the eight classes of plan catalogues to be supervised by the one remaining Drafting Center at the Ontario Agricultural College. It was anticipated that revisions would proceed at the rate of one or two catalogues a year by insertion of additional sheets in the catalogues where this was practical or a revision of the catalogue when necessary.

Authorized by the NCAE, Downing and Theakston travelled from coast to coast and met with representatives of provincial and federal Departments of Agriculture to discuss various details of the Plan Service.

Gaining Greater Acceptance

The Downing-Theakston discussions held in the provinces proved that the Plan Service was accepted in all parts of Canada, but it was felt that better operation methods were needed to expedite the plans. Consequently, a provincial chairman (later called 'contact man') was appointed in each province to collate ideas and plans, and to act as liaison man with the Guelph Design Office. Each province was to handle its own promotion and distribution program, obtaining the catalogues from CDA Information Service and purchasing plan sets through the Queen's Printer (now Department of Supply and Services), Ottawa.

It was expected that closer liaison between the provincial committee chairman (who became known as the provincial contact) and the Guelph Design and Drafting Center would facilitate CFBPS operations and improve communications. In this way, ideas or plans originating in one province, could be channeled to the provincial contact man who would submit the idea to the Guelph Center. The idea or plan would then be designed and drawn according to specifications of the originating province. Then preliminary drawings would be sent to all provincial contacts for an evaluation in their respective provinces. When approval was received by the Drafting Center from the initial originating contact, the final catalogue insert and plans would be processed and a description of construction methods prepared. Then the catalogue insert and the plans were forwarded to CDA Information Service, Ottawa.

When the preliminary drawings were received by the provincial contact, and accepted as useful in a particular province, it was his responsibility to order sufficient copies of the catalogue inserts and the plans for distribution within the province.

CFBPS Executive Committee

Consolidation of the three Drafting Centers in one at Guelph led to the need of a governing body to handle the revision of a complete catalogue series. Upon approval, it would arrange meetings of a limited number of interested and active personnel for the assessment of a catalogue and plan series when it was deemed necessary for a complete revision. Thus was born the CFBPS Committee of the National Committee on Agricultural Engineering. Membership was to be as follows : Chairman — an NCAE member; a representative from CDA Information Division (formerly Service); officer in charge of the Design and Drafting Center;[1] a provincial extension agricultural engineer (later called 'contact man'), and a CDA Agricultural Engineer.

Several building plans were revised, a number of new plans were prepared, and corresponding individual catalogue insert diagrams were issued in 1959. The same year, the idea of including Bills of Materials was approved and, henceforth, were included with the plan sets.

A "Supplement to Catalogues of Plans of Farm Structures and Equipment" was published in 1960. One finds in the Foreword: "This supplement includes all plans developed since all the catalogues were originally printed. The catalogues will be revised periodically, but each year a supplement will be printed which will include new plans not printed in catalogue revisions." The 1960 Supplement contained 27 plans related to livestock, one related to fruit and vegetables, three to poultry, and one to special structures.

French Translation Slow

Getting the catalogues translated and published was a slow process. David Fortin, retired

1. F.H. Theakston was Director; A.H. (Al) Singleton was Chief Draftsman and associated with him at the Guelph Center were Draftsmen Al Morden (later moved to Ottawa), Jake Klimstra, Ross Gordon and Alex Lockey.

Agriculture Canada French Translator who handled CFBPS assignments for years, recalled how reference works on farm building terminology were almost non-existent. Fortin found that he had to develop his own French dictionary of technical terms, and this took time.

Although the demand for French catalogues and plans by 1962 was still relatively low, it was realized, nevertheless, that faster translation service was needed. Farm building technical terms still posed a problem for the translators. In 1964, Professor J.A. Choinière, Laval University, who had represented Québec for the CFBPS, was consulted when the sepia system of plan distribution was introduced. John Hogan, who followed Choinière as Québec contact, was also very helpful in providing preferred farm building terminology. In 1965, Ernest Mercier, Québec's Agriculture Deputy Minister, was consulted to learn if some of his expert staff might lend a temporary hand to translate any plans that were deemed of value to Québec. It was hoped that other provinces requiring French editions would also translate plans to meet their requirements.

During 1966, a bilingual clerk with CDA Information Division started a French-to-English glossary in connection with the Sheep catalogue. It was hoped that glossaries would expedite the translation of catalogues and plans; however, he later left Agriculture Canada and the glossary idea, while a good one, was not pursued further.

To expedite matters, the Guelph Center provided the CDA Information Division with one line drawing and one completely labelled copy of each plan. These were returned to Guelph as soon as translated for final sepia processing. Cost to the provinces for the French sepia sheets was the same as for the English sepias, $1.25 each.

French translation of the catalogues proceeded on schedule at the CDA Information Division during 1967. Information Division was able to reduce the backlog and kept a steady flow of translated working drawings going to the Guelph Center's bilingual secretary who typed the translations onto the final drawings for sepia processing. Unfortunately she resigned, and processing of the French versions was temporarily stopped at Guelph. In this emergency, the CFBPS asked the CDA Information Division to hire a bilingual secretary at Ottawa and to rent the special long-carriage typewriter required for typing directly onto unfolded drawings. Guelph kept the original typewriter to continue preparation of the English versions.

An indication of the effort to catch up on French translation needed for the revised Dairy, Poultry, Sheep and Swine plans is revealed in a CFBPS progress report issued by the Guelph Center on January 12, 1968. French translation of the English plans and typing of the French plans was completed by the CDA Information Division. The plans were then sent to Guelph for application of indication arrows and final checking. This done, Guelph then prepared and mailed the sepia prints to Québec.

Catalogue Editions 1955-1970

Series	English	French
Beef	1955/59/61/66/70	1955/65/70
Dairy	1956/63/64/66/68	1956/63/66/67
Swine	1956/58/64	1961/67
Sheep	1956/59/63/66	1956/66/70
Poultry	1958/65	1970
Fruit & Veg.	1955/64	1956/67
Grain	1959/67	1964/67
Spec. Str.	1959/63/66	1965/70

Farm Buildings Standards Needed

CFBPS Chairman Downing pointed out in 1960[1] that there were no specific standards for farm buildings and, accordingly, had consulted the National Research Council (NRC), Division of Building Research, on factors in building design. This led to NRC sponsoring a special meeting under the aegis of the Chairman of the Associate Committee on the National Building Code, with representation from provincial departments of agriculture, universities and commercial wood and steel associations to discuss the advisability of assembling a set of standards or code for farm structures. A recommendation by the NCAE was forwarded to the NRC Associate Committee on the National Building Code to consider establishing a code for farm buildings (design standards, fire, safety and health), as a supplement to the National Building Code.
Up until that time, the National Building Code of Canada simply listed some types of farm buildings under their major occupancy classification in a group of commercial and industrial buildings. Consequently, since there were no guidelines for farm buildings in the different classifications, industrial specifications might have to be applied to farm structures. It had yet to be generally recognized that agricultural buildings served a specialized and extremely varied range of functions. Any narrow or restrictive type of regulation would not be consistent with modern-day functional design of such buildings. Most agricultural engineers

1. Professor Eric Moysey of the Department of Agricultural Engineering, University of Saskatchewan, prepared a report which was published as Technical Paper No. 77, Division of Building Research, National Research Council — "Farm Buildings in Canada — Present Status and Future Needs" — August, 1959. It served as a useful basis for discussions that were coming to the fore on farm building standards at the time.

designing buildings in Canada had used recommendations and allowable loads for structural members from different text books that had been developed primarily in the United Sates. That being the situation, the CFBPS attempted to use reasonably consistent design criteria based on textbook information, some aspects of the National Building Code of Canada, the results of testing procedures on structural members and experience gained in farm building construction practices by different members of the CFBPS. However, because of the wide variation in Canadian climatic conditions and the snow and wind problems, it had been difficult to satisfy all conditions. Consequently, an urgent need had developed for a set of criteria for the functional design and construction of all types of buildings that would satisfactorily apply to all areas of Canada.

Subsequently, in 1962, the NCAE recommendation led to the establishment of the Farm Building Standards Committee — a 19-member body representing a cross-section of Canadian personnel interested in farm buildings. Two years later, "Farm Building Standards 1964, Supplement No. 6 to the National Building Code of Canada", became available.

Over the years, the Canada Plan Service has maintained close liaison with the Standing Committee on Farm Buildings of which J.E. Turnbull is the current Chairman and J.E. Brubaker and J.D. Gunn are Members. This Standing Committee, in turn, reports to the Associate Committee on the National Building Code.

Theakston Appointed CFBPS Chairman

F.H. Theakston, in 1963, was appointed Chairman of the Canadian Farm Building Plan Service, succeeding C.G.E. Downing. Theakston also continued as Director of the Design and Drafting Center, OAC, Guelph.

Sepia System Introduced

The switch to sepias was made in 1964. Sepia prints of the plan sets now were printed 24 x 18 inches, supplied at cost by ordering directly from the Guelph Center. Instead of ordering plan sets through the Queen's Printer, which had proven to be a slow procedure, the provincial departments could now use the sepia prints to make whiteprint copies of plans as orders were received. The method removed a burdensome printing commitment from the Queen's Printer. At the same time, it eliminated the 1-year time period previously required between completion of plans at the Drafting Center and completion of the printing job by the Queen's Printer. The sepia system also made possible the alteration of plans to meet provincial requirements and the elimination of stockpiling of plans in provincial offices. Cost of sepias to the provinces was $1.25 a sheet.

Prior to the introduction of the sepia system, it was estimated that over one million plan sheets had been distributed, as well as over four hundred thousand English catalogues and nearly forty thousand French catalogues.

CFBPS Appraisal

The NCAE, in its 1966 review of the Canadian Farm Building Plan Service, reported that through the co-ordinated effort of provincial and federal Departments of Agriculture, the CFBPS was effectively performing its function of providing basic plans for farm buildings at the least possible cost. The plans had contributed to the upgrading of Canadian farm buildings, structurally and functionally. Indeed, the plans and the descriptive catalogues had been generally accepted by farmers, agrologists, building contractors and suppliers of materials and equipment for the agricultural industry. The provincial Extension Branches had reported that from 25 to 100% of agricultural extension engineers' time was being devoted to farm structures' programs.

In addition, there were several benefits of national interest such as being a central co-ordinating authority to provide leadership, co-ordination, direction and financial assistance to the program; also, it was now physically possible for smaller provinces to establish effective farm building advisory services. The 1964 Farm Building Standards had been developed; CFBPS plans and catalogues were translated into French; the plans also provided a standard for use by federal, provincial and local lending agencies who loaned large sums for farm improvements involving farm buildings. The Canada Department of Agriculture benefitted by having the best information available to guide its own farm building construction program (e.g. Greenbelt Farm, Ottawa). The farm building plans could also be used for new and renovated buildings on farms involved in rural development programs. Finally, active research programs which would upgrade standards and improve efficiency of farm structures could be initiated and encouraged on a national basis.

Quick-Release System Introduced

Wanted was a faster method of getting an idea or original design through the CFBPS system to users of the plans. A 2-year delay was not unusual. This resulted in plans being as much as 2 years out-of-date due to rapid evolution of farming systems.

To overcome this delay and to further improve the CFBPS operation, the Chairman in 1967 tabled a recommendation calling for the introduction of a 'quick release' plan system to supplement the regular plans and catalogues.

The quick-release system would involve plans, designs or sketches being prepared at that moment by provincial experts to meet immediate requirements in the field. These would be sent to provincial contact men. At the discretion of the local contact, these plans would be redrafted locally (if necessary) and forwarded to the Guelph Center, ready for distribution. Format was the usual 24" x 18" but with appropriate provincial title-block. The Center would be responsible only for reproduction of the provincial drawings and distribution of those drawings as sample white prints, and sepias when ordered. Responsibility for adequacy of structural design and for feasibility of layouts, etc. would be on the provincial originators of each plan. The quick-release system, since it required no drafting at Guelph, was not expected to interfere with routine preparation of the regular plan sets. As the NCAE Annual Report states: "It was decided that the quick-release system should be put into effect immediately on a trial basis". (And it has been used ever since.)

Later, in 1971, a new procedure for submission of quick-release plans was developed. Four copies and a descriptive write-up of a plan were sent to the Sub-Committee chairman involved who, in turn, circulated copy and write-up to each committee member. If the plan was acceptable, the chairman notified the source province to send the original drawing with write-up to the Center.

New Location for Design Center

The year 1968 witnessed a major decision about relocation of the CFBPS Design and Drafting Center in Ottawa. A 1968 motion by E.P. Hudek, Manitoba, and seconded by J.A. Roberts, New Brunswick, was passed calling on the NCAE to consider the advisability of relocating the CFBPS operations, taking into account the long-term needs of the organization. In view of the proposed hiring of a structures engineer for the CFBPS, it was suggested that it would be appropriate to consider relocation; there would be certain advantages in it being established and coordinated at Ottawa.

The review of the Plan Service program and operations by the NCAE was considered a fair and reasonable evaluation of the Guelph and Ottawa locations. The vote was divided, but a majority favored a move to the Engineering Research Service[1] at Ottawa.

1. 1978 — now the Engineering and Statistical Research Institute

The most important and significant reason given for the transfer to the Research Branch, Ottawa, was the change in operations in the Engineering Research Service. This included agricultural engineering co-ordination responsibility for Canada, under then new director C.G.E. Downing.

A federal location would give a broader coverage of needs for all areas of Canada and put the Ontario influence into fair perspective.

With a new permanent headquarters and a strengthened professional staff, the CFBPS would be expected to be of greater value to the agricultural extension services of the provinces. It had been useful in introducing new building designs and livestock management practices; moreover, it had been instrumental in promoting better standards of construction and better utilization of structures in the rather broad agricultural buildings field. Looking to the future, the CFBPS would be challenged to make its service even more valuable, as new concepts and engineering principles were used for the more complex buildings and systems needed to satisfy the demands for more efficient and flexible livestock management practices, and storage requirements. It was essential, therefore, to give more attention to basic functions and to design of the building plans, and facilitate their early development for use in the field and to improve coordination. Costs to the federal government were estimated at that time to be about $36,000 per annum.

The Director and assistant design engineer would be Development and Advisory engineers, who would be required to devote one-third to one-half of their time to CFBPS operations. One draftsman within the establishment was transferred to the plan service operation.

The standing sub-committees on revision of the catalogues, it was recommended, must take more initiative in the upgrading of the plan series and should include one of the Ottawa design engineers on each sub-committee, usually functioning as secretary.

Ottawa New Headquarters

Transfer of the CFBPS Design and Drafting Center from the University of Guelph to Agriculture Canada's Research Branch became effective in August 1968, although the Guelph Center did not officially close-out its CFBPS operation until January 31, 1970. It was agreed that Guelph should complete the current revision of the Beef plans and catalogue. The Ottawa Center took over the balance of revision priorities: Swine housing and equipment was scheduled for completion by Fall 1969, followed by an immediate start on the Dairy series, while revisions were slated as soon as possible for

Special Structures, and Fruit and Vegetable Storages. They switched to the photo-offset-on-tracing-vellum reproduction method whereby copies of plans were made directly from penciled drawings. One reproducible copy of every plan sheet produced at the Ottawa Center, including Quick-Releases, would be sent to each provincial contact man.

Ottawa Center Personnel

John Turnbull of the Research Branch's Engineering Research Service became Director of the Ottawa Design Center. His staff consisted of H.A. (Harold) Jackson, design engineer, and draftsmen L.P. (Leo) Blais and J.A. (Al) Morden.

Other Developments in the Sixties

Old-timers will recall the 9 x 13-inch plan sheet size — but, in 1962, it was changed to 24 x 18-inch sheets for better readability and use in the field.

In 1967, the CFBPS Chairman was given authority to establish 'Development and Revision Committees' to work on revised catalogues and plan sets.

Grant Webber, representing the Ontario Hydro Farm Sales Department, had prepared electrical layouts for all recent CFBPS plans, at that time, in co-operation with the Guelph Design and Drafting Center — and at no cost to CFBPS. In 1967, Mr. Webber, on the recommendation of the NCAE, was made an official member of the CFBPS Sub-Committee. Later, he was succeeded by R.G. Winfield.

It was also during 1967 that the CFBPS title was changed from "Canadian" to "Canada" to achieve similarity in French and English; that the CFBPS logo and letterhead was approved; and that the photo-offset reproduction method for plans was accepted, along with an increase to $2 per sheet.

C.G.E. Downing succeeded William Kalbfleisch in 1968 as Chairman of the National Committee on Agricultural Engineering. Bill Kalbfleisch had passed away on June 18, 1967.

The draftsmen were in the news in 1968: no longer would the plan sheets be pasted up with typewriter-set headings — in future, hand-lettering and pencil line-work would be acceptable, in order to achieve faster production and updating.

In 1969, Dianne Cleare (nee Hammer), Alberta Department of Agriculture farm home specialist, attended the CFBPS annual meeting. Would the CFBPS consider the inclusion of farm homes in their terms of reference? After several meetings, then and subsequently, it was decided that farm homes would not be included.

ADM Plug Sparked Interest

According to the 1969 NCAE Report, Dr. J.C. Woodward, then Assistant Deputy Minister (Research), Agriculture Canada, complimented the CFBPS. He talked about the NCAE and how it was primarily a co-ordinating and advisory committee, and how he hoped that it would give leadership and guidance and challenges to the the various administrations represented on CASCC[1] in order that the engineering area in Canada might develop in a logical and effective manner. "The NCAE Committee," he said, "had made a real contribution through the Canadian Farm Building Plan Service, which had been primarily an assignment to the Committee and quite different from most other Committee responsibilities." He went on to say that engineers had been in somewhat of an unenviable position because their profession had been slow to develop in Canada, in the research aspects at least, as compared with many of the biological fields, and this was in spite of the fact that the most outstanding change in agriculture had been mechanization through the use of engineering. "Certainly," he said, "signs of agricultural engineering coming of age were seen in the appreciable increase in under-graduate and post-graduate programs at the universities, the expansion of extension engineers' activities in all provinces, and so hopefully, this would also develop in the Canada Department of Agriculture activities."

1. Canada Agricultural Services Coordinating Committee.

ERA III THE SEVENTIES

Theakston Makes Final Report

The CFBPS Ottawa meeting, in February 1970, heard lively discussion on building design, fabrication, ventilation, insulation, farmstead layout, environmental control, and the storage and handling of animal waste. Indeed, farm dwellings, improved methods of handling and distributing drawings and publications also came in for a fair share, too.

Concerning component design, Chairman Theakston said it was receiving greater emphasis and commercial material suppliers were developing complete packages for the farm. "CFBPS," he said, "had approached component design in two ways: plans for building components, e.g. roof trusses, had been developed to simplify and speed up erection of the buildings; and plans for component buildings had been developed to house animals of different ages in an environment best suited to their needs. These individual buildings could function as a unit for a complete animal housing system or separately as a phase of the system."

He also drew attention to the research projects that were being carried out by Engineering Research Service, namely, ventilation for animals in confined housing, the storage and disposal of animal waste, design of plywood nailed diaphragms, and the use of alternate materials as diaphragms, evaluation of the porous ceiling principle, effects of moisture on foam insulation, cost of truss roof framing systems, rotational resistance of CFBPS truss joints, and the 'oxidation' ditch system of deodorizing liquid manure, in co-operation with the B.C. Department of Agriculture. "Some research at other establishments," Theakston said, "consisted of the effect of environment on beef cattle — University of Saskatchewan; fruit and vegetable storage — University of B.C.; and management of animal wastes — University of Alberta."

The Ottawa meeting also passed a resolution which was to be presented to the Canadian Farm and Industrial Equipment Institute "on the dimensional standardization of milking parlors". It was felt that this would resolve minor differences between equipment produced by various manufacturers.

Looseleaf System vs Catalogues

It was at the 1970 CFBPS meeting that a looseleaf binder system, including covers, was approved to replace the catalogues which had been in use since 1954. With this method, catalogues could be continuously updated and made more informative. So the catalogues were gradually phased out and replaced by the popular 8-1/2 x 11-inch leaflet, ring-hole punched for looseleaf binders. At last, E.T. (Terry) Oatway's suggestion had become a reality and Reg. Miller and Chairman Brubaker saw their motion passed.

Metric Recommendation

No time was lost. In 1970, the CFBPS resolved to convert to the metric system and, where possible, to use hard metric units on plans and specifications. More details follow.

Dairy and Special Structures Committees in 1970-71 Spotlight

Hudek, Miller and Milne (Dairy Cattle Housing) concluded that there was a definite trend to free stalls and increased emphasis would be placed in that direction, with some emphasis on better designs for tie-stalls. Five free-stall barns were reviewed as follows:

- 60-stall, slotted floor, controlled environment; a 60-stall, scrapeout, with pit under and cross conveyor, for silage or hay;
- 100-stall scrapeout, optional pit under, cross conveyor:
- 100-stall expandable to 200 stalls, 4 rows, pit under;
- 200-stall expandable to 400 stalls, 6 rows, pit under.

Gunn and Pos (Special Structures) reported that the S.S. plans needed revision, although many existing ones should be retained. Gunn said that new plans would be prepared for horse barns, rabbit and mink housing, maple syrup production, an on-farm slaughterhouse, a farm bridge, and bulk storage of fertilizers. It was decided that playground equipment and tobacco buildings should not be included.

He also remarked that there was a need for a farm workshop plan, and the Committee was going to consider either a single building shop plan or a bulletin on the subject. ("Farm Workshops" — Agriculture Canada Publication 1588 — eventually appeared in February, 1977.)

CFBPS Production — 1970

The Beef revision was completed by the Guelph Center in June 1970. The Ottawa Design Center

was also busy on Swine and Dairy revisions. Seventy-five Swine building drawings had been completed, and 15 preliminary Swine drawings prepared and discarded. New component system proposals for Swine plans were prepared and circulated.

Balloon System Introduced

A new technique was tried for simplifying the presentation of information on plans; a numbered notation system (sometimes called the "Balloon System") was prepared and circulated. The advantages were many: it clarified the drawing by removing the cluttering descriptions from the drawing and placing them in a margin at the right-hand side; it allowed typing of the descriptions on a sheet instead of hand-lettering; it permitted duplication of a description while only printing it once; it simplified planning a drawing by making it easier to determine drawing space requirements; it greatly simplified translation into French; it provided a simple method of cross-referencing details from one sheet to another; and, last but not least, it proved to be a valuable aid in correspondence by simply referring to the notations by plan, sheet and number. The system was a godsend to the draftsmen and others who, over the years, had been charged with typing headings and pasting them on the plans. Indeed, it was a major departure from past CFBPS plan formats but Turnbull, at the 1971 meeting, won support for this streamlined way of presenting drawings. Credit for the idea goes to Walter Loates & Associates, Ottawa, who introduced it into the CFBPS as Dairy Plan 2102 — Slotted Floor Dairy Barn — prepared under contract.

Ottawa Swamped by Revisions

Personnel at the Design Center in 1970 consisted of a Director (1/3 time designated to CFBPS) and a Design Engineer (2/3 time to CFBPS) or the equivalent of one full-time engineer for CFBPS, one and a half draftsmen designated to CFBPS and one secretary part-time to CFBPS. But the Center had found itself grossly understaffed to keep pace with the rapid increase in technology and to cope with the increased load. According to J.E. Turnbull, Design Center Director, it would take two years to complete the Dairy series with existing staff under the present system. This was followed by commitments to the Special Structures, Fruit and Vegetables and the other five series to follow.

Of the several alternatives proposed to expedite the plans and to relieve the pressure imposed on the Design Center, it was decided that a professional drafting service be hired (subsequent approval $20,000), keeping the existing staff at the Ottawa Center for preliminary and single-sheet drawing and processing. It received the support of the Provincial Deputy Ministers and the Extension Agricultural Engineers.

Brubaker Succeeds Theakston

Frank Theakston resigned as Chairman of the CFBPS committee in 1971; a period of ill health and increased demands at the University of Guelph had influenced his decision in relinquishing the post he had held since 1963, when he took over from Glenn Downing. Professor Theakston had actively served the Canadian Farm Building Plan Service committee since its inception in 1953, and also assisted with earlier preliminary planning.

J.E. Brubaker, Supervisor, Agricultural Engineering, then Ontario Department of Agriculture and Food, was appointed by C.G.E. Downing, Chairman of CCAE (formerly NCAE), to succeed Theakston. The CFBPS annual meeting in Ottawa, September 21-22, 1971, was Brubaker's inaugural; but it was also a theatre for Theakston tributes — just as the annual meeting of the Canadian Society of Agricultural Engineers was in Charlottetown, June, 1972, when Frank Theakston was presented with a handsome scroll. It was a moving tribute from his CFBPS colleagues and fellow engineers a recognition of 18 years' service to the CFBPS and a grateful acknowledgment of his contribution to the development of this national service.

The New Chairman Listens

A discussion on CFBPS was in full swing at the 1971 Ottawa meeting. The new Chairman listened intently. Downing referred to two recommendations CCAE made to CASCC that annual sums of money be made available to the CFBPS for contract drafting and the Ottawa Center drafting staff be increased from two to three; and that the provincial departments of agriculture must vote increased money to support the CFBPS.

A range of subjects unfolded. Don Gunn felt that not all the detail presented in the plans was being used but the service was needed. Concerning the value of the annual meeting, he said that it helped to co-ordinate research and extension services in the provinces Les Reid reported that Alberta was reducing all 24 x 18-inch CFBPS plans to the 8-1/2 x 11-inch size and sending the mini-plan set to the farmer, thus advertising the full-sized plan. "Reduced plan

distribution costs and making more filing space available for plans was the reason," Reid said. But the other provinces disagreed, claiming it was the purpose of the catalogue leaflets to promote the plans G. Calver (then with Ontario) reported that 14,000 plan sets were distributed in that province between September 1970 and 1971. "CFBPS plans give the farmer good ideas," he said, "and encourage good building practices." He mentioned that binders to hold CFBPS catalogue leaflets and catalogue cover sheets had been obtained for agricultural representatives (Ag. Reps.) and agricultural engineers.

Farm Buildings Seminars

J.E. Turnbull and H.A. Jackson participated in the first of a series of Farm Buildings Seminars in May 1971 in Winnipeg. The topics covered were: concrete foundations and perimeter insulation; post-frame wall construction; knee-bracing design for wind; diaphragm ceiling design for wind; and the economics of truss spacing. Oatway strongly supported the holding of seminars because they encouraged good building principles. The Manitoba Seminar described design principles incorporated in the CFBPS Swine series.

Other seminars followed across Canada, involving both engineers and draftsmen. They were organized to present new ideas and concepts, including Farm Building Code requirements, CPS structural design methods, controlled environment for animal production buildings, and other engineering topics. Draftsmen, under the leadership of Leo Blais, were instructed about CPS drafting standards and illustrative techniques.

Priorities

The priority rating system was conceived by Harold Jackson, adopted by the Design Center in 1971, and has been in effect ever since. The Center lists all suggested plans needed and sends this list on a special reply form to each provincial contact man; they note their comments and a numerical rating of local importance on the form and return to Ottawa. The Design Center then selects the highest priority items for assignment to the draftsmen.

A Winfield-Oatway motion required sub-committees to send leaflet write-ups, describing new and revised plans, to the Design Center — before the drawing went beyond the preliminary planning stages. This would assist in establishing priorities and also facilitate printing of the leaflets simultaneously with the plan release. By the same token, the Design Center would distribute preliminary plans with write-ups to provincial contact men, requesting priority comments.

Trussed Rafters

The start of engineered low-slope gable roof trusses in Canadian farm building construction occurred about 1958. This method of achieving wide clear spans with stock sizes of sawn lumber has virtually standardized the shape of new farm buildings regardless of their function. The CFBPS, aware that component design was receiving greater emphasis and commercial material suppliers were developing complete packages for the farm, had developed plans for roof trusses to simplify and accelerate the erection of the buildings. Today the Canada Plan Service has 96 truss drawings available, divided about 50-50 to fir or spruce lumber; these are currently being converted to metric.

According to H.A. Jackson, the computer has been a time-saver in calculating a variety of dimensions that are necessary in trussed rafters. "For example," he explained, "the Design Center can put such information into the computer and provinces can have access to this information. So far, Alberta, Saskatchewan and Ontario have taken advantage of these computer programs. With 96 drawings involved, it is a short-cut to quickly obtaining dimension details."

Truss revisions were a highlight of the 1971 meeting when it was agreed that load diagrams should be included on truss design sheets, along with a statement that the design stresses included factors for low load human occupancy farm buildings. Jackson reported that many CFBPS trusses needed revision, to adjust for reduced sizes of lumber and reduced allowable stresses (National Building Code, 1979). So it was agreed that the truss plans would be revised as required in new plan sets.

NEW CONFERENCE SITES

Manitoba '72

The traditional practice of holding the Canada Farm Building Plan Service annual meeting in the federal capital, Ottawa, was modified when the CFBPS was invited to hold the 1972 conference in Winnipeg, Manitoba. "It was a forward step," said Chairman Brubaker, "one that encouraged CFBPS committee members and provincial contact men to become more open as they conducted their business sessions. In addition, the tours of agricultural communities to observe and study new and recent structures

and equipment presented an opportunity to evaluate the CFBPS influence and contribution to the country-wide farm construction picture."

Chairman Brubaker reported at the 1972 Winnipeg meeting that he had visited all provinces during the year and talked to senior officials who gave him encouragement and support. He re-emphasized the importance of the CFBPS committees and called on all representatives in attendance to participate freely, frankly and openly. "This meeting," he said, "establishes the policy under which the Design Center and the CFBPS committees work which I have to report to the CCAE." He reflected. "A lot of assignments will result from this meeting," he said, "and must be completed, not forgotten. Representatives should set priorities in their work, allotting at least one day per month for CFBPS work that has a national application, not just a provincial one."

Plans Production Improved

"I'm glad to see that the plan production situation improved during the past year," Chairman Brubaker told the Winnipeg meeting, adding, "the transfer of the work from Guelph had swamped the Ottawa Center and created a serious backlog." He was glad to see that Ontario, Quebec and British Columbia had lent a hand, and that the Center had been authorized to contract out some drafting. The production score was good.

Contract Drafting

Turnbull recalled that only two drafting contracts had been let; one for 54 truss sheets, the other for a dairy plan (2102 on which the numbered-notation technique had been introduced). "Additional contracts were not let," he said, "because of the drafting help received from the Provinces; furthermore the experience with the truss contract was disappointing." Turnbull also mentioned that the Design Center was preparing its own electrical layout designs which facilitated earlier distribution of plans.

Gaining International Attention

The Ottawa Design Center and CFBPS were becoming better known internationally and Turnbull's papers given at European, British and American conferences had helped. An extensive correspondence had developed with farm building research institutes in Scotland, the Netherlands, West Germany, Denmark, and U.S.A. (USDA, and the Midwest Plan Service).

Translation Situation Improved

The French translation situation revealed that there was no longer any backlog of CFBPS plans although action was still awaited on getting the Index translated, and a lag still existed in translating the leaflets. John Hogan was very helpful with the translation of the Index, leaflets and plans, and Leo Blais deserved 'full marks' for his checking and coordinating efforts.

Provincial Programs Boost Construction

Graeme Linkletter told the Winnipeg meeting that the Prince Edward Island "Family Farm Program" of 1972 gave impetus to farm building construction. He said that the Program covered installed equipment, feed storage, irrigation structures and equipment, along with land drainage and improvement, breeding livestock, and farm lane improvement. The CFBPS pole barn, and single-storey dairy barn plans were used extensively, he added. (Word from Linkletter in 1978 is that during 1972-75 some 2,500 farmers had been assisted with building construction to the value of $15,697,000; and between 1976 and 1978, $11,128,000.)

Arnold Roberts reported that construction had been stimulated by New Brunswick's "Livestock Housing and Facilities Improvement Program" introduced in 1972. It provided financial assistance for the construction of dairy, sheep and swine buildings; and the Engineering Branch was responsible for approval of plans and completed structure.

Bob Milne said that a "Suggested Code of Practice" had been developed in Ontario as a joint project between the Ministry of Agriculture and Food, and the Ministry of the Environment. The guidelines, he explained, were geared to the granting of a Certificate of Compliance which all farmers were encouraged to apply for. This had stimulated interest in storage of liquid manure for up to 6 months' accumulation, and had increased the demand for manure storages.

Potpourri Notes

Metrication was discussed but action remained in abeyance; copies of Information Division's new folder "The Metric System for Farmers", English and French, were sent to the provincial contacts. In future, all CFBPS sub-committees would be called "committees" The Design Center would be preparing plans and leaflets incorporating waste management information CCAE Chairman Downing, who was present at the Winnipeg meeting, reported that the Waste Management Guide had just been reviewed by the provincial people for the last time and was ready for printing. Commenting on a CFBPS recommendation to CCAE, he thought that additional financial support might be available to

the Design Center, to translation, and to equalization of transportation costs. All provincial contact men at the Winnipeg meeting agreed that the Plan Service had improved greatly over the past two years.

Objectives for 1973

Towards the end of the meeting, Brubaker led the session in setting objectives for the Plan Service for the next year. These included 30 new plan sets with leaflets, and others.

"Objectives were set so that we, as a Plan Service, could plan our course and program for the next year," the Chairman said. "A year later, we could review our program to determine if we had achieved our goals."

A very useful tour of some livestock buildings and a large potato storage at Carman was conducted by Terry Oatway. The CPS members viewed well constructed buildings and had the opportunity to discuss the management aspects with the owners. For several members, this was their first opportunity to inspect Prairie farm buildings.

New Brunswick '73

At Fredericton, Chairman Brubaker, following a welcome address by the Deputy Minister, told the 1973 annual meeting that CFBPS plans continued to be well received by all provinces, and were being utilized as complete plan sets, components for other plans, and for ideas and concepts. Following the business sessions, the members were taken on a tour of farm structures in New Brunswick and Nova Scotia. "The objectives of the tours at the time of the annual meeting," he said, "were to make all provinces aware of new concepts, good ideas and working systems, and to make them aware of problems peculiar to an area."

The meeting reviewed the objectives established the previous year at Winnipeg. Although the objective of 30 plan sets had been exceeded by one, only 22 new leaflets were distributed.

CFBPS Name Change

Over the years, the acronym — CFBPS — had become a tongue twister. Terry Oatway had moved in 1972 that the name be changed to "CANPLAN" but couldn't then get a seconder. Chairman Brubaker was asked to appoint a committee to search for a possible alternative name, and 'Ham' Kenney, CDA Information Division, was named as the one-man committee. The names Canplan, Canada Agriculture Plans, and Canada Plan Service were later proposed but none was given majority approval in the vote by mail. At Fredericton, the following names were suggested:
Farm Buildings Canada, Canada Farm Buildings, Canada Agriculture Construction, Farm Structures Canada, Canada Farm Structures, Canada Farm Construction, Agriculture Plans for Canada, Canada Plan Systems, Farmstead Planning Systems, Canada Farm Systems. An immediate decision couldn't be reached early in the meeting — but, before it was over, Don Gunn and Terry Oatway got agreement that the new name CANADA PLAN SERVICE/SERVICE DE PLANS was most acceptable, subject to CCAE approval.

The reasons for the change? Canada Plan Service (CPS) was easier to say, remember and promote. It somewhat paralleled Midwest Plan Service, too, an organization that performed the same function. At a subsequent CCAE meeting, the new name was finally accepted.

Training Courses

A series of 3-day courses on CFBPS drafting standards and techniques were initiated in different regions of Canada. Purpose was to better integrate and correlate the drafting carried out by the provincial agencies on behalf of the Plan Service with that of the Ottawa Center. The courses have been given by Leo Blais, Ottawa, and are well received.

It was announced at Fredericton, too, as a matter of drafting policy, that in each plan set the optional and/or supplementary sheets and/or leaflets would be listed on the first page of the plan set, but not listed as a sheet number in the plan set, trusses included.

Bulletins and Leaflets

At one point, it was realized that not all 'plans' required a 24 x 18-inch drawing size. In fact, there are many plans in which illustrative techniques, descriptive paragraphs, and tabular design data are more important than scaled drawings; in these plans it was soon realized that the leaflet could better give all the information, and no large drawings were required at all. Thus, many leaflets now stand as the complete 'plan'; the 8-1/2 x 11-inch single-sheet, two-page format is still typical for simple pieces of farmstead equipment, but many more complex structures have required 4-page and even 8-page format (for example, tower silo foundations, plans 7411 and 7412).

Farmers' bulletins have been produced under the auspices of CPS, also trimmed at 8-1/2 x 11 inches and 3-hole punched to fit the same loose-leaf binders the provinces use for keeping CPS leaflets. The first of these bulletins was Confinement Swine Housing, pub. 1451,

produced first in 1971, by Agriculture Canada under direction of the Swine Committee. Since then, bulletins on potato storage (1973), farm feed processing (1976), insulation (1976), and farm workshops (1977) have been published, and several more were under way.

Objectives agreed to at the Fredericton meeting, for 1974, included 20 new plan sets, 80 leaflets, and a class on drafting standards and techniques.

Alberta '74

The CPS 1974 annual meeting was held at the Stampede Ranch, Longview, Alberta, 40 miles southwest of Calgary, in the foothills of the Rockies. The tour, which included visits to a variety of large farm operations, provided the opportunity to observe a number of innovative agricultural structures.

System Operating Efficiently

Chairman Brubaker reported at the Alberta meeting that the Plan Service continued to be used extensively in all provinces. Existing plans were under continuous review and updated as required, and new plans were introduced as the need arose. "The system," he said, "is operating efficiently."

The meeting heard reports on committee , activities and needs, structures research and extension in Alberta and British Columbia, policy discussions and a meeting of the Sheep committee. The Design Center completed 22 new plans and 72 leaflets during the past year. The objective was 20 plans and 80 leaflets. In addition, eight Quick-Release plans were distributed. The production of leaflets during 1973-74 completed the changeover from catalogues. Leo Blais had held another class on drafting standards and techniques attended by four provincial draftsmen. He had also compiled a glossary of some 250 farm building terms and mailed it to all provinces. He claimed it would be an aid to drafting uniformity across Canada.

Several Changes Proposed

CDA Information Division had designed a new logo and title block; the Design Center was instructed to start drawing plans of a suitable size for reproduction on A-2 size metric paper; a distribution system for CPS leaflets was proposed, utilizing Information Division's equipment; a revised plan numbering scheme was in the works — one that would provide more extensive numbering, simplify filing, enable sets of plans to be numbered consecutively, and include a new 9000 series for components and engineering design. A proposal to prepare drawings to metric scales and ratios was tabled because the wood industry had not completed its plans towards metrification, and the farm construction industry was not yet ready for these plans.

Windt Wisdom

Tom Windt gave an excellent illustrated talk on "Farm Building Extension Work in British Columbia". "At the present time," he began, "we are witnessing one of the greatest transition periods in the agricultural industry that we are likely to see in our lifetime. With an extreme shortage of good farm labor and the ever increasing cost of production, the only way that a farmer was able to stay in business was by increasing the size of his unit and becoming more efficient. Thanks to mechanized confinement type housing facilities, farmers were able to do this." Then he said that one of the best ways of persuading farmers to adopt a new innovation was to find a progressive individual to work with as a farm co-operator, build a prototype of the building or piece of equipment and use it as an example to others. He showed a number of excellent slides, illustrating successful examples of different farm buildings. "We practice close liaison and follow-up," he said, "to further improve the plan."

Darby Dialogue

Dennis Darby's paper, "Farm Structures Research in Alberta", described some of the general concepts and philosophy on structures research, summarized current projects of the University, and Alberta Agriculture, and suggested areas for expansion on research needs. "Two institutions, the University of Alberta and the Engineering and Home Design Branch of Alberta Agriculture," he said, "as well as many segments of the construction industry, are conducting research in farm structures in this province." He paid tribute to the industry's contribution. "Not to be overlooked, but difficult to fully assess," he continued, "is the contribution to structures developments by industry, both the construction sector and the basic building materials industries." He pointed out that an extensive list could be developed ranging from treated wood house basements, pole building designs, improved concrete finishing agents, foam insulations, adhesives, modular prefabricated building designs and better structural and construction techniques. He said that valuable contributions were continually being made by both the small private builder and the large industry institutions such as the Plywood Association, Portland Cement Association, Canadian Underwriters and others.

Then he counselled his colleagues in the CPS audience. "This is an area in which we as agricultural engineers can well become too complacent with our present contacts and superficial knowledge of these elements of the construction industry. Two very general steps towards improving our efforts in these areas are: to develop better contacts with and knowledge of farm building contractors in our respective provinces; and to pursue developments in the construction and building materials industry and relate this information to clients and staff alike."

Next Year's Objectives

Chairman Brubaker's objective-setting sessions became serious forums spiced with lively discussion. The objectives agreed to for 1975 called for 20 new plan sets, five leaflets, a drafting standards' class, and, it was hoped, that publications on farm workshops, feed processing rooms, greenhouses, and insulation would be in the advanced stages of production and, in some cases, completed.

Québec '75

The CPS had a productive year in 1975, with excellent output from the Design Center, Chairman Brubaker told the annual meeting held at the Provincial Forestry Station, Duchesnay, Que., 40 miles northwest of Québec City. He noted that all provinces were contributing to the Plan Service and relied heavily on the plans for buildings extension work. The Ottawa Center produced 48 new plan sets, far exceeding their objective of 20. In addition, 12 plan sets were produced through the Quick-Release system. Four participants attended the Drafting Standards and Techniques Class.

New Distribution System Tried

A photocopy system for distribution of leaflets was initiated but some problems with quality control developed. The idea was that the provincial contacts would arrange for printing their own quantities of leaflets from masterprints provided free by CDA Information Division. The system made possible a 5-10 day service from Information Division as compared to the 8-10 week service with the old method. However, some provinces liked the new method while others did not. In spite of assurances that ink 'fill-in' would be eliminated by using only boldface solid numbers instead of 'reverse' numbers, problems of reproduction kept recurring and the system was finally rejected.

Structures Research in Québec

Professor J. Choinière of Laval, a former Québec CPS contact man, said that he was the only person at the University involved with farm structures, and that he had recently made a survey of 25 plastic foam-insulated buildings to determine their resistance to insects. He and M. Fortier were making field observations of piston-type manure pumps. The 'Pompara' pump manufactured in Québec seemed to have a lot of promise. John Turnbull also mentioned that the new manure handling system of Patz looked promising. Gilbert Belzile was doing controlled atmosphere (CA) apple storage work for Québec.

Recreation Structures?

A long discussion on the merits of including recreation structures, such as swimming pools, in the CPS Special Structures series resurrected the terms of reference (farm home excluded) laid down by C.G.E. Downing in 1969. Eight members voted against including recreational facilities. Only Owen Moen was in favor.

Turnbull on the Hot Seat

Concerning specifications for concrete slats on plans, Turnbull claimed they were excluded because on-farm technology for casting slats was very poor. "Farmers," he said, "should be forced to go to a precast plant for slat technology." Eight members were in favor, and two opposed, to including complete slat specifications on plans 1401, 2102, 2340, and all new plans. Turnbull agreed that the Design Center would investigate the possibility of producing a 9000 series leaflet on slat design and fabrication (quality control).

Concerning engineering specifications and stamps on plans, Turnbull said that it was not practical to put an Ottawa engineer's stamp on all CPS plans because a different stamp was required in each province. Instead, it was agreed that all the design criteria required to develop the plan should be indicated as notes and tables on the plan.

Improved Numbering System

At the previous annual meeting, E.T. Oatway objected to the proliferation of plans, partly due to new plans being introduced without discarding the older versions of the same items. He proposed a complete re-numbering of the CPS plan system, to re-align plans into more logical groupings. Darby suggested that the re-numbering should take place at once, but it was soon realized this would mean re-publishing the entire CPS system in a single year. A more workable solution evolved whereby plans would receive the new numbers whenever they came up for major or minor revision.

The next year at Duchesnay, the CPS members were in complete agreement with the numbering system developed by Turnbull, Oatway and Gilchrist — a committee appointed at the previous annual meeting. They were informed, too, that the 9000 Building Engineering series would be a second responsibility of the Special Structures committee.

The new numbering system attached more significance to each of the four digits in the plan/leaflet identification number. All 'animal' series were then subdivided using the second digit to identify specialized functions, similar to the 3000 Swine series as shown below:

1000 — Beef
2000 — Dairy
3000 — Swine
4000 — Sheep
5000 — Poultry
6000 — Fruit & Vegetable
7000 — Grain, Forage & Feed
8000 — Special Structures
9000 — Building Engineering

3000 — General (swine) information & management
3100 — All-age housing (farrow-to-finish)
3200 — Adult housing (breeding & gestation)
3300 — Maternity housing (farrowing)
3400 — Growth housing (weanling, growing & finishing)
3500 — Product buildings & equipment
3600 — (Swine) feeding & watering facilities
3700 — (Swine) manure storage & handling
3800 — Handling & confinement (farrowing stalls, etc.)
3900 — (Swine engineering & miscellaneous)

The third and fourth digits identify the individual plan or leaflet, and final zeros indicate a general descriptive leaflet which is applicable to more than one plan. For example, Leaflet 3300 (if such existed) would describe farrowing facilities in general, but Leaflet 3311 describes Plan 3311 which is a specific farrowing barn. The advantage of this is that when the re-numbering is finally completed, the new plan index will list similar and related titles in logical sequence, and regular CPS users will eventually know where to look for a particular type of building. In addition, prefix letters can be added to identify a metric plan (M-3801, for example), or a quick-release plan (Q-3429).

The renumbering is still in progress at this writing and will not be complete until the last old drawing is revised or discarded.

There was a lengthy discussion about including a list of materials on all plans but support was insufficient to revive the practice. Québec wanted the materials listed but the others thought they were unnecessary. On the other hand, Ontario was developing a computer program which would produce a materials list and could probably provide Québec with a printout.

Terry Oatway told the meeting that the Midwest Plan Service had requested that a Manitoba CPS member sit on their main committee. A recognition bouquet!

Objectives for 1976

"It has been a productive meeting," Chairman Brubaker said, "and a productive year just passed. Looking ahead to 1976, I think we've set ourselves a challenging year; our list of plans and objectives is challenging to say the least." Briefly, these were: to produce one plan to full metric specifications; to review the Grain Forage & Feed series (new name for Grain Storage) with a view to metric conversion because the Grain Industry would be changing-over in 1976; to produce five supporting publications along with four general management leaflets; to produce six new plan sets; have each committee actively review its series; release an Index update, incorporating new plans, deletions and other information; and conduct one Drafting Standards & Techniques Class.

In closing, the Chairman said that a request would be made for funds to hire one draftsman and one editor for 2 years to convert CPS plans and leaflets to metric. He noted that there were about 240 plan sets and leaflets in the total CPS Series and that these should be made ready for planned changes in the lumber industry in early 1978.

British Columbia '76

The 'eastern delegation' arrived at Harrison Hot Springs, B.C., on a rainy Sunday evening but the weatherman turned on the sun for the next three days — a request, it was rumored, came from the Chairman.

Most Objectives Met

Many of the objectives established for the past year were met. There was a feeling of accomplishment.

The Grain, Forage & Feed series was reviewed for metric conversion and preparation of a general management leaflet initiated.

One sheep plan was drawn to metric specifications and then circulated. The feedback from CPS members was that all future plans should be drawn to ratio scales. This would be useful in achieving metric conversion without completely redrafting the plans (only the dimensions and the ratio would require changing).

The Dairy, Swine, Poultry, and Fruit & Vegetable committees met and reviewed plans in their series during the past year to let the Ottawa Design and Drafting Center know the latest developments.

Dialogue Revelations

Jim Munroe, a new Engineer at ERS, questioned the fire compartment size for poultry buildings as stated in the Canadian Farm Building Code. "The present specifications," he said, "severely restrict the size of two-and-three-storey buildings such as Plan 5318." Here was an example of the Poultry and CFBC committees working together to ensure efficient poultry building plans.

Farm bridges came in for some good rhetoric. The provinces supported the idea of a farm bridge plan but considered it a low priority item; however, the Special Structures committee was to come up with a recommendation on farm bridges. In 1977, a concrete bridge plan from Ontario was to be issued as a Quick-Release plan, while a timber bridge was to be submitted for priority rating.

Was it necessary or not to put footings below frost penetration? "Many farmers and contractors were placing footings on grade or just below even though frost penetration is to a greather depths," Munroe said, adding that the Special Structures committee would be developing leaflets on different types of foundations for cold and warm buildings, including consideration for precast concrete foundations and tanks.

The discussion on farm building contracts revealed positive action was in the wind. For example, Manitoba was concerned about farm building quality and was developing a standard contract document to clarify the farmer-builder relationship which might lead to the adoption of the Canadian Farm Building Code as a provincial regulation. British Columbia had developed contracts and specifications for their farm management people, and New Brunswick had a short form contract which spelled out responsibilities of the builder and farmer.

Polyurethane and insurance — that was the next question. Graeme Linkletter revealed that insurance companies in Prince Edward Island were giving farmers, who had buildings insulated with exposed polyurethane, 12 months' grace to upgrade their storage. "This upgrading," he said, "required placing a 15-minute thermal barrier over the insulation." He added that he had prepared a bulletin on the subject, outlining temporary housekeeping improvements farmers had to make to be eligible for the 12-month grace period. This revelation led to a vote (8 for, 1 against) that all CPS plans must meet the National Building Code of Canada requirement that exposed plastic insulation must be covered or removed and replaced with a less hazardous insulation.

The CPS drama continued to unfurl; it was now Gilbert Belzile's turn. He indicated that a number of 'frameless steel arch' buildings had failed in his province because non-reputable enterprises were selling them as designed buildings. "The failures were mainly caused by snow load," he said, as the meeting got geared for discussion. It was mentioned that this type of building, in Ontario, had been known to collapse under snow load and had blown off the foundation during erection. In British Columbia, steel buildings now had to be approved and stamped by a registered engineer, because of previous failures. There had been problems in Alberta, too, usually due to poor workmanship; in Saskatchewan, lack of an adequate foundation was the problem, and Nova Scotia had had one failure due to snow load. So to combat the above problems, it was agreed that a building code requiring engineer-approved plans and site inspection was needed with enforcement at the municipal level. "Farmers should be encouraged to make sure of what they were getting," Belzile said, "by requiring the contractor to provide a plan with adequate detail." Curiously enough, the frequency of farm building failures was unkown because the provinces were not documenting them, and, apparently, there was no support for a study, the discussion revealed.

John Turnbull outlined reasons for a proposed snow-load study. "At present," he said, "there is no snow load reduction factor for metal roofs when compared to shingled roofs, and the recent change in the NBCC requiring 4/12 sloped gable roof buildings to be designed for both balanced and unbalanced roof loads, affected most CPS plans." He said that the National Research Council was willing to cooperate with some other agency in performing snow studies at selected sites across Canada, preferably near ground weather stations. Snow depth and density observations would be required after every snow storm at these sites. The CPS contact men agreed to give the proposed study their general support.

Jim Munroe came back for an encore when he handed out a paper on open ridge ventilation and requested comments on provincial practices. Then he distributed another paper — this time a written discussion on insulated vent ducts for center inlets versus uninsulated ducts, wherein it was concluded that insulated ducts were a justifiable expense to control summer heat for most locations in Canada.

Chairman Brubaker brought the discussion to a

close with a pregnant question. "What were the long and short (5 year) term research needs of CPS?" He said that committee chairmen would be asked to confer with their members and prepare a list of research needs related to their respective committees. Subsequently, John Turnbull would be sending out a draft of research needs to provincial contacts as a backgrounder.

Metric Conversion

"The accepted metric drafting scales are 1:200, 1:100, 1:50, 1:20, 1:10, and 1:5," Chairman Brubaker told the CPS 1976 annual meeting. Then added: "The 1:40 and 1:25 scales approximate popular Imperial scales and work well on paper size now being used by CPS — but I prefer the 1:30 scale instead of 1:25, while the 1:40 scale is acceptable."

How CPS went about getting ready to change over to metric is best explained this way. In 1976, CPS Plan #4154 was given two press runs: one contained Imperial dimensions and the other Metric. Purpose of the exercise was to show CPS engineers a sample CPS Plan of the future when metric would be in vogue.

CPS had also worked out a metric methodology in readiness for conversion day. To avoid drawing plans twice, they were now being drawn to metric ratio scales, but showed only Imperial dimensions. At the same time, an accompanying note in the legend block stated: "Not to Scale". The Imperial dimensions were on removable labels and could be peeled off and replaced with metric dimensions — a job that could be done by a typist or clerk.

When Leo Blais explained the CPS metric switchover to an Information Division group on November 25, 1976, he encountered some debate about showing the metric plan dimensions in millimetres. "Our authority for using millimetres," he said, "is the 'Manual on Metric Building Practice' — Bulletin No. 15234, issued by the National Research Council." He explained that the main reason for showing all plan dimensions in millimetres was to eliminate decimals and fractions, as well as endlessly repeating mm on the Plan.

There was considerable discussion on the merits of drawings using metric dimensions in millimetres versus centimetres. However, the CPS decided to follow recommendations received through the Metric Commission; namely, to dimension in millimetres and metres. Thus, 2 400 meant 2.4 metres or 2400 mm, whichever one preferred. "The centimetre," said John Turnbull, "is being regarded as a non-recommended intermediate dimension."

Objectives for 1977

The Chairman recapped CPS objectives for the coming year. For example, 32 to 36 plans were requested, as were four seminars to be held on metric drafting, and a new updated Index. Three bulletins were to be published, along with a revision of Confinement Swine Housing. Also, trusses for 8' oc spacing by using double top and bottom chords to develop triple shear in nailing were to be investigated. "And I plan to write each committee chairman requesting a continued vigilance being exercised in reviewing their series and in deleting obsolete plans," the Chairman concluded.

Prince Edward Island '77

The Agriculture Canada Research Station, Charlottetown, was the site of the 1977 CPS annual conference. The Deputy Minister of Agriculture and Forestry welcomed the members and said a word about P.E.I.'s agriculture programs. On another evening, the CPS group was addressed by the Minister of Agriculture and Forestry.

Objectives Oratory

"Fellows," the Chairman began, "we met our objectives for the past year. Three bulletins were completed and published; five seminar classes on metric drafting were taught by Leo Blais; 28 new and 16 revised plans were produced; and a new Index was completed in April 1977."

Dialogue Revelations

During 1977, two 'temporary' draftsmen were employed and it was expected that a full-time draftsman would replace the two casuals.

The good ship 'Metric' was sailing smoothly. Since January 1976, all CPS plans had been drawn to "even" ratio scales and to proposed metric sized materials. As reported previously, Imperial dimensions were being shown on these plans. It was a very simple process to change these to metric dimensions — which would be done on exhibited demand.

It was then that Bill Durant and Maurice Pascua put through a motion that starting immediately, all CPS plans be produced in both Metric and Imperial unit versions. As of November 1977, all new CPS plans were to be published in duplicate with Imperial dimensions on one plan and metric on the other; in addition, trusses would be redesigned and redrawn to metric dimensions.

On January 1, 1978, the construction industry, at least in theory, went metric. As Ottawa Journal reporter, Henry Heald, said at the time: "If farmers think metrication is complicating their

lives, they might spare a kind thought for the engineers and draftsmen at Agriculture Canada's Engineering and Statistical Research Institute, who have more than 200 plans of the Canada Plan Service to convert to metric units."

Dennis Darby reported that pressure-treated (pentachlorophenol) lumber was being investigated by National Health and Welfare Canada for contamination of animals and food products in structures treated. Chairman Brubaker said that he would be sending committee chairmen information and guidelines so they could review plans in their series and note where possible contamination by penta and creosote might occur — and report. "If any CPS livestock and greenhouse plans were found to have recommendations on the excessive use of penta- or creosote-treated lumber, the plans would be changed or withdrawn," he said.

John Turnbull reported that the Quick-Release plan system depended almost entirely on provincial drafting services, and added that metric plans for series 7000 Grain, Forage and Feed, were in preparation by the provinces.

Jim Munroe had his snow-load studies going at four Agriculture Canada Research Stations. "They are restricted to steel roof buildings," he said, "4/12 roof slope, cold interior and exposed location." One problem was getting on the roof and installing the gauges without risk of damaging the roof. The study involved monitoring snow depths on roofs and relating them to ground snow data from local weather stations. The idea is to determine actual roof snow loads, compared to ground snow loads on some existing farm structures.

Should animal physiology information be included in the Dairy Housing bulletins? The committee thought it should. The same policy should also apply to including non-engineering type information and would apply to future sections on Calf Housing. The committee seemed to be of the opinion that bulletins need not be totally geared to the farmer (e.g. 90% understandable and 10% too technical was an appropriate mix).

Feedback on Research Needs

Chairman Brubaker distributed a list of research and development needs of CPS. It was reviewed and a few additions were made. The priorities in the structures area were set as follows:

1. Ventilation — develop accurate data on heat and moisture production of livestock in several environments in functional buildings; and evaluate different ventilation systems including heat reclaimers.
2. Structural — evaluate beam to pole connection techniques and effect on design assumptions; determine required depths below frost level of building foundations; and determine structural diaphragm effect of roofing and siding systems.
3. Manure — systems analysis of manure handling in wet climates.
4. Livestock — no priority set for project in this group.
5. Miscellaneous — systems analysis of cleaning grain before drying.

The priorities set in energy conservation area were as follows: grain drying and aeration; design of energy conserving greenhouse; development of natural air ventilation system; and investigation of solar energy techniques to assist ventilation of livestock buildings.

The Chairman later presented the above priorities to CCAE. He pointed out that farm building costs needed to be reduced through better structural design. "Rapidly increasing costs of construction materials and labor," he said, "have influenced farmers to buy many more poorly engineered buildings — which were often unsafe for climatic and storage loads, and completely unsuited to the temperature and humidity stresses of the Canadian climate."

Brubaker concluded that today's problems and demands in farming call for professional advisory and service agencies — such as the Canada Plan Service — to give leadership in focusing on research and development needs, and conducting vital studies to find solutions to farm building and equipment problems.

Standing Committees Take the Stand

In view of the decline in the sheep population and the effort planned to reverse the trend, the Sheep committee reported that consideration was being given to encouraging residents on small rural holdings to start into sheep. The idea appeared to be feasible since a small flock could be managed by a part-time farmer. This could generate a need to provide plans for a suitable building and adequate fencing to meet the small flock owner's requirements. The committee, in looking ahead, thought that plans should be developed for a multi-purpose pole frame building (50-100 ewes), and a controlled environment barn, for the small flock owner.

The Poultry committee recommended that limitations should be removed on maximum fire compartment size, providing adequate provision was made for exit or entry to the structures. The applicable subsection of the Canadian Farm Building Code, it seemed, placed severe limitations on poultry building design.

The discussion generated both comment and discovery. "Poultry structures now being built in Ontario," Jim Arnold said, "differed considerably

from recently released CPS plans; the type of construction appeared to be dominated by equipment manufacturers.''

The Fruit & Vegetable committee's summary listed several revisions, new leaflets and plans.

The Grain, Forage and Feed committee suggested that new bulletins were needed on 1) aeration; 2) grain storage layout and handling equipment; and 3) seed cleaning equipment and plant design.

Potpourri Encore

The CPS Design and Drafting Center had moved to Building 74 on the Central Experimental Farm into much improved quarters; and two extra draftsmen (casual) had been on staff in the spring-summer period and a new drafting position was to be filled.

Foundations and walls, heat loss and rodent control were bulletin topics to be developed by the Special Structures committee Concerning truss designs, Tom Windt suggested that the top chord sizes be reduced by increasing the numbered web members of Douglas fir trusses — an idea that should be considered when redrawing truss plans to metric He also requested that plate designs in plans such as 8163 be either revised or alternate designs provided. The Design Center, it was agreed, would not change the continuous plate beams in the plans but would make certain that they could be fabricated, and nail end spacing for the joints in these plate beams would be given Another name change? Yes, the Canada Plan Service Committee should be renamed the Expert Committee on Farm Buildings, if the committee was to assume the responsibility of reporting farm building research and development activities and requirements to the Canada Committee on Agricultural Engineering (CCAE). Alan Roberts and Don Gunn got a motion passed that the CPS Committee would fill the role of the Expert Committee on Farm Buildings for purposes of reporting to the CCAE.

Alan Roberts expressed disagreement with the interlocked heating principle as it pertained to ventilation systems; John Turnbull was to follow-up . The Chairman raised a question concerning a perimeter drain at foundation level for stud wall buildings to reduce frost heave in soils with high water table. It was agreed that such drains be included as an option and show the surface perimeter gravel splashpad without drain . Jim Arnold described an open front, earth floor beef barn (20' wide) which had experienced a serious corrosion pattern on the underside of the galvanized steel roof; the building had removable panels on the back wall for summer ventilation. Answer? The Sheet Steel Institute blamed the corrosion on the presence of sulphur; in any event, the roof had to be replaced. Don Gunn said that Nova Scotia had some corrosion problems over covered manure tanks. Jim Arnold invited the provincial contact men to report corrosion occurrences to him for study by the Institute . . . A few truss failures had occurred in Ontario due to inadequate bracing during erection; the Special Structures committee planned to review the B.C. truss erection leaflet and make recommendations to the Design Center to prepare a CPS leaflet on the subject . . . Alan Roberts distributed copies of a building contract developed by Manitoba, for CPS study; Roberts was also planning a seminar for Contractors and wanted agenda subjects, and Ontario's Jim Arnold said he would oblige.

Objectives for 1978

The CPS objectives-setting tempo of the 'seventies' experienced an exhilerating acceleration and 1978 — 25th Anniversary Year — was another year in search of continued accomplishment. They aimed to publish at least four bulletins. They planned to release 25 new plans (Imperial and Metric versions would count as one plan) and redesign and release the new truss series in metric. A new Index, updated with related bulletins included, was also in the 'works'. Committees were told to priority rate plans in their specific series for metric conversion; in addition, the Sheep committee was requested to again review their series to further reduce the number of plans. And, while the Glossary of Farm Building Terms was a low priority objective, plans for organizing the CPS 25th Anniversary Meeting called for a special sub-objective. It was to make certain the CFBPS/CPS founder, Dr. C.G.E. Downing, arrived from Australia for this silver jubilee event.

Cooperative Publishing

Let's look back and look forward in the realm of CPS publications. It used to be just catalogues or leaflets and plans but the need for special publications gained momentum in the 'seventies'. The Canada Committee on Agricultural Engineering in its 1974 report to CASCC expressed appreciation to the CDA Information Services for their cooperation and support, through the Federal-Provincial Co-operative Publishing Program, in getting CPS publications edited, printed and distributed. The extension agricultural engineers reported good results from these publications.

The Canada Plan Service publications are serving farmers' needs and enjoy international

recognition by many farm building research institutes. "Confinement Swine Housing" is an excellent example because it is a comprehensive design/management bulletin that supports, for example, the completely revised Swine series 3000. The CPS Swine Housing committee developed a family of building designs, each building unit being a component which could be fitted together with others to plan a more-or-less complete swine production system.

Ontario '78

At time of going to press, preliminary indications were that most, if not all, of the objectives for 1978 would be achieved. The Design Center was hopeful that its goal of 25 new plans would be reached.
Happy Planniversary!

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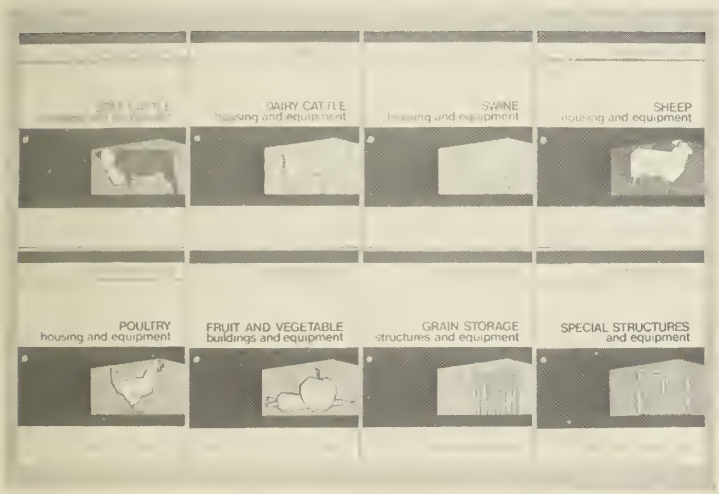
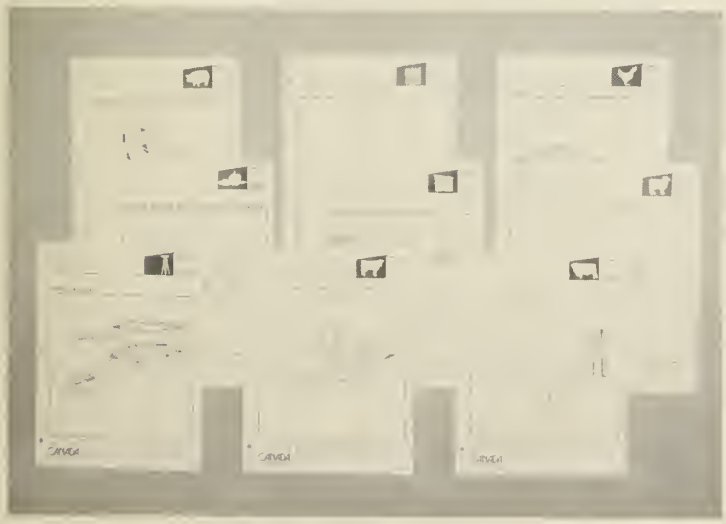
The popular 8-1/2 x 11-inch leaflet, ring-hole punched for looseleaf binders, replaced the catalogue format in 1970. Currently available are 213 English and 188 French different leaflets.





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